Does Social Capital Help to Explain Mental Health Disparities Between Single and Partnered Parents in Canada?

A Thesis Submitted to the College of

Graduate Studies and Research

in Partial Fulfillment of the Requirements

for the Degree of Master of Science

in the Department of Community Health and Epidemiology

University of Saskatchewan

Saskatoon

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Abstract

Some evidence suggests that single parents may experience lower social capital than partnered parents. However, few studies have examined whether social capital is useful in explaining the frequently reported mental health differential between single and coupled parents. The research questions for the current study were: 1) can disparities in mental health between single and partnered parents be explained by differences between these groups in social capital, above and beyond that explained by economic factors?; and 2) Are there particular dimensions of social capital which are more or less strongly associated with family structure disparities in mental health?

The data source was Statistics Canada's 2010 General Social Survey (Cycle 22). Analysis was restricted to 18-59 year old single (n=648) and partnered (n=4952) parents. Principal components analysis was conducted to develop a measure of social capital. Multiple logistic regression analyses were conducted to examine the relationship between family structure and perceived mental health, prior to and after adjusting for socioeconomic and social capital measures. All analyses were conducted separately for mothers and fathers.

Single mothers scored lower than partnered mothers on some, but not all measures of social capital. Poor mental health was more common among single than partnered mothers (OR=3.03, 95% CI 2.23-4.12). After adjustment for all explanatory factors, including social capital, the odds ratio for family structure and mental health decreased but remained statistically significant (OR=2.13, 95% CI 1.48-3.3.06). Although single fatherhood was associated with a 1.81 greater odds of fair/poor self-rated mental health compared to partnered fathers, the difference did not meet the traditional criterion for statistical significance (95% CI 0.97-3.37;

p=.06). Single fathers did not score differently than partnered fathers on most of the social capital dimensions.

Although social capital, particularly the dimension of trust, may play a role in understanding single mothers' poorer self-rated mental health relative to partnered mothers, the results of this study are too preliminary to inform policy directed at improving their mental well-being. Longitudinal research which includes a larger sample of single fathers is needed to clarify the nature of the relationship between family structure, social capital, and mental health.

Acknowledgements

I would like to thank everyone who helped and supported me in writing my thesis. I would like to first thank Dr. Bonnie Janzen for providing me with this opportunity, her guidance, as well as her time and support (funding and with the process of analyzing/writing the thesis). Thank you so much, I have learned so much from working with you. Also, I would like to thank my committee members Dr. Ivan Kelly, Dr. Bill Laverty, and external advisor Dr. Phil Woods for their guidance with the thesis writing, analyses, and agreeing to participate in my thesis committee. Additionally, I would like to thank my friends (you all know who you are!) and family for all of their love and support.

A special thanks to my parents for their love and support, I could not have accomplished this without you, thanks!

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Chapter One: Introduction

Family structures have evolved significantly over the last three decades – from married couples with children to single parents by choice – families in Canada have molded into a variety of different forms (1). One of the most significant changes has been the increase in the proportion of families headed by a single parent. In Canada in 2006, single parents represented almost 16% of all families, compared to just under 10% in1966 (2, 3). The majority of single parent families, both historically and currently, have been led by single mothers: in 2006, 80.1% of all single-parent households were headed by women, representing approximately 1.1 million families (3). While single mother families still dominate, the proportion of families headed by single fathers has been growing at a faster rate than single mothers: in Canada, from 2001 to 2006, single father families increased by 14.6% compared to an increase of 6.3% among single mothers (3). As of 2006, there were approximately 281,000 single-father families in Canada (3).

Over the last three decades an overwhelming body of research has accumulated, indicating that single mothers experience poorer mental health than their partnered counterparts (4-8). A more limited body of research suggests a similar association between family structure and mental health for fathers (9-12). In Canada in 2008, 21% of single mother households were below the poverty line, compared to 6% of two-parent households, and 7% of single father households (13). Although single fathers, on average, fare better financially than single mothers (13), compared to partnered fathers, they do not (14).

Epidemiological research has shown that much, but not all, of single mothers' elevated risk of mental morbidity compared to partnered mothers can be explained by their greater socioeconomic hardships (5, 15-16). One of the more recent explanations posited to assist in understanding differences in the mental health of single and partnered parents involves the

concept of social capital (17-20). Although definitions abound, social capital can be generally thought of as a "*resource accessed through social relationships*" and as encompassing both behavioral (e.g. community participation) and cognitive (e.g. trust in neighbours, sense of belonging) dimensions (21-25). A growing body of research has linked higher levels of social capital to a variety of positive mental health outcomes, including reductions in the risk of psychological distress (26) and the development of major depression (27). Although the precise mechanisms remain unclear, both direct and indirect pathways between social capital and mental health outcomes have been postulated, including a potential "stress buffering" role for individuals exposed to adverse life conditions (25, 28-29). Research to date, though limited, suggests that the cognitive components of social capital may be more strongly associated with mental health outcomes than the structural (ie., behavioral) aspects (30-32), though more research is needed.

Research suggests that parents in single family households may experience lower levels of social capital than those in coupled households (18-20). However, few studies have examined whether social capital is potentially useful in explaining mental health differentials between single and coupled parents. Research directed at understanding the relationship of social capital to the mental health of single and partnered mothers and fathers in Canada could provide valuable information on how to better equip individuals with the tools needed to increase their social capital resources and therefore, their mental well-being.

Research Questions

Using a nationally representative sample of Canadian mothers and fathers, the current study sought to answer two questions: 1) Can disparities in mental health between single and partneredparents be explained by differences between these groups in social capital, above and

beyond that explained by economic factors?; and 2) Are there any particular dimensions of social capital which are more or less strongly associated with family structure disparities in mental health?

Chapter Two: Literature Review

This chapter begins with an overview of the research literature which has documented the presence of disparities in mental health between single and partnered parents. The potential mechanisms which might explain the association between family structure and mental health are then presented, focusing in particular on socioeconomic determinants. Psychosocial explanations are then discussed, including the role that social capital may play in understanding single parents' poorer mental health.

Mental Health and Family Structure

Over the last several decades, a voluminous body of research has studied the mental well-being of single parents relative to partnered parents (10, 16, 33-34). With a focus primarily on mothers, this research has concluded, much more often than not, that single mothers report poorer mental health than partnered mothers (5, 7-8, 34). The results of key studies examining the family structure – mental health association are described briefly below, first for mothers and then for fathers. Please refer to Table 1 for a more detailed description of these studies.

Lone Mothers and Mental Health

Differences in the mental well-being of single, compared to partnered mothers are well-documented in Canadian research. Largely based on nationally representative data sources, such as the Canadian Community Health Survey (CCHS) and the National Population Health Survey (NPHS), these studies have shown that compared to partnered mothers, single mothers, on average, experience greater psychological distress (7, 35-36), alcohol consumption/abuse (36-37), and depression (8, 38-40). Most recently, Wade et al (4), using data from the CCHS: Mental Health and Well-Being reported an elevated prevalence among single compared to partnered mothers for the following psychiatric conditions: major depressive disorder, manic episode,

panic disorder, substance dependence, mood disorder and anxiety disorder. The compromised mental health of single mothers compared to their partnered counterparts, has been similarly reported in other Westernized countries, including Great Britain (10, 16,), Sweden (41), the United States (33, 37), Australia (5,42), and New Zealand (11). In one of the few nationally representative studies examining risk (as opposed to prevalence) of mental health problems by mother's family structure, Weitoft et al (41) reported single mothers in Sweden to have an increased risk of hospitalization or death for psychiatric conditions, addiction, and suicide.

Lone Fathers and Mental Health

Compared to single mothers, research examining the mental health of single fathers is more limited, based to a large extent, on small, geographically constrained convenience samples, limiting the generalizability of the findings (e.g. Janzen et al (43)). Even when fathers are included in studies which draw on nationally representative samples, the low number of single fathers may reduce researchers' ability to detect family-structure differences in fathers' mental health due to a lack of statistical power (36). Nonetheless, evidence is accumulating that single fathers may, like single mothers, experience poorer mental health than their partnered counterparts. In Canada, Wade et al (4), using data from the CCHS (Mental Health and Well-Being) reported that a greater proportion of single than partnered fathers met the criteria for several psychiatric disorders including major depressive disorder, substance dependence, and mood disorder. Recent research from other countries report similar findings (10, 44).

In a British study, Cooper et al (10) reported that 33.6% of single fathers compared with 13.3% of partnered fathers met the criteria for one or more "common" mental disorders, including depression, panic disorder, specific phobia, obsessive-compulsive disorder, and generalized anxiety disorder. In a recent American study tracking a representative sample of

fathers over a five year time period, rates of binge drinking, illicit drug use, and depression were reported to be significantly higher among single fathers (who were continuously unmarried during the follow-up period) than married fathers (who were continuously married during the follow-up period) (12).

Finally, Weitoft et al (44) studied the causes of premature morality among Swedish men according to their family structure by linking national census data with Sweden's morality registry. Compared to partnered fathers, custodial single fathers had double the risk of dying prematurely due to an addiction, though no difference was found in regard to deaths due to suicide. The most elevated risks of death (compared to partnered fathers) were for single fathers who did not have custody of their children, with relative risks of 2.3 (suicide) and 4.7 (addiction) reported (44).

Explaining Mental Health Disparities between Single and Partnered Parents

Although the research reviewed above shows quite a uniform pattern of associations between parents' mental health and their family structure, particularly mothers, there is less agreement in the scholarly literature concerning the mechanisms that may cause these mental health disparities. After all, the academic study of single parents' well-being crosses a number of different disciplines, and although not mutually exclusive, each has their own particular foci. Within the social epidemiological literature, several explanations are dominant (28, 45).

The first explanation is essentially one of reverse causation; that is, mothers and fathers with pre-existing mental health problems are less likely to become or stay partnered (41, 44). The second and most popular perspective focuses on socioeconomic (ie., materialist) factors to explain single parents (ie. mothers) compromised mental health. According to this view, there is nothing inherently health damaging about being a single parent (28). Rather, it is the less than

favorable socioeconomic circumstances that single mothers often find themselves in (compared to partnered mothers) which places them at a greater risk of poorer mental health. Materialist explanations view income as a resource for living, enabling access (or not) to a variety of health-enhancing life circumstances, including good housing in safe neighborhoods, good nutrition, adequate transportation, and needed services (28, 45). Underlying materialist explanations (and the psychosocial explanation which follows) is the stress process, whereby prolonged exposure to chronic life strains brought about by living in disadvantaged material circumstances leads to compromised mental and physical health.

Table 1: Family Structure and Mental Health*

Authors	Country	Data source	Mental health measure	Main results: mental health of single versus partnered parents
Afifi TO, Cox BJ, Enns MW. Mental health profiles among married, never-married, and separated/divorced mothers in a nationally representative sample. Soc Psych & Psychiatric Epi.2006; 41:122-129. (33)	United States	U.S National Comorbidity Survey	Composite International Diagnostic Interview based on DSM III-R criteria.	Compared to partnered mothers: Divorced mothers had higher prevalence of anxiety-misery disorder, depression, dysthymia, generalized anxiety disorder, PTSD, externalizing disorder, and antisocial personality disorder. Never married mothers had higher prevalence of PTSD, agoraphobia, drug abuse, antisocial personality.
Avison WR, Davies L. Family structure, gender, and health in the context of the life course. J of Gerontology.2005;60B:113-116. (36)	Canada	Canadian National Population Health Survey (NPHS)	Psychological distress measured with 6 item index created from longer scale for U.S. National Comorbidity Study Alcohol consumption- in past yr # of times in one event have they had > 5 drinks	Mothers: greater psychological distress and alcohol consumption for single than partnered mothers. Fathers: no significant difference in psychological distress or alcohol use between single and partnered fathers; however, a non-significant trend in that direction reported for young single fathers (distress) and middle age single fathers (alcohol use).
Baker D, North K, The ALSPAC Study Team. Does employment improve the health of lone mothers? Soc Sci & Med. 1999;49(1):121-131. (34)	Great Britain	Avon Longitudinal Study of Pregnancy and Childhood (ALSPAC)	Edinburgh Postnatal Depression Scale (EPDS)	Single mothers had a greater likelihood of major depressive disorder than partnered mothers.
Bull T, Mittelmark MB. Work life and mental well-being: single and non-single working mothers in Scandinavia. Scandinavian J of Pub Health.2009 Aug; 37(6):562-568. (46)	Denmark, Sweden, and Norway	European Social Survey (ESS	3 measures for mental health: Life satisfaction measured with 1 question: "All things considered	Partnered mothers reported higher life satisfaction and happiness compared to single mothers; no difference in positive affect.

Authors	Country	Data source	Mental health measure	Main results: mental health of single versus partnered parents
			how satisfied are you with your life as a whole nowadays?" Positive Affect measured with WHO's 5 Wellbeing Index Happiness: measured using 1 question asking considering all things, how happy one is	
Butterworth P. Lone mothers' experience of physical and sexual violence: association with psychiatric disorders. Brit J of Psych. 2004;184:21-27. (42)	Australia	National Survey of Mental Health and Wellbeing.	Composite International Diagnostic Interview (CIDI)	Single mothers had an increased prevalence of psychiatric disorders, psychological distress, and history of violence.
Cairney J, Pevalin DJ, Wade TJ, Veldhuizen S, and Arboleda-Florez J. Twelve-month psychiatric disorder among single and married mothers: the role of marital history. Can J of Psych. 2006; 51(10): 671-676. (37)	United States	National Comorbidity Survey (NCS)	University of Michigan Composite International Diagnostic Interview	Compared to partnered mothers: Separated/divorced mothers had a higher prevalence of major depressive disorder, dysthymia, alcohol abuse without dependence. Never married mothers were not more likely to experience a mental disorder.
Cairney J, Boyle M, Offord DR, and Racine Y. Stress, social support, and depression in single and married mothers. Soc Psych & Psych Epi. 2003; 38:442-449. (8)	Canada	National Population Health Survey (NPHS)	University of Michigan Composite International Diagnostic Interview – Short Form (CIDI-SF)	Single mothers have a greater prevalence of depression and stress than married mothers.

Authors	Country	Data source	Mental health measure	Main results: mental health of single versus partnered parents
Cairney J, Wade TJ. Single parent mothers and mental health care service use. Social Psychiatry and Psychiatric Epidemiology.2002; 37:236-242. (40)	Canada	National Population Health Survey (NPHS)	University of Michigan Composite International Diagnostic Interview – Short Form (CIDI-SF)	Single mothers have a greater prevalence of major depressive disorder, consulting a doctor and healthcare use than partnered mothers.
Cairney J, Thorpe C, Rietschlin J, and Avison WR. Twelve month prevalence of depression among single and married mothers in the 1994 National Population Health Survey. Can J of Pub Health.1999; 90(5):320-324. (38)	Canada	National Population Health Survey (NPHS)	University of Michigan Composite International Diagnostic Interview – Short Form (CIDI-SF)	12 month prevalence of depression greater in single mothers compared to married mothers.
Cooper C, Bebbington PE, Meltzer H, Bhugra D, Jenkins R, Farrell M, King M. Depression and common mental disorders in lone parents: results of the 2000 National Psychiatric Morbidity Survey. Psych Med. 2008;38: 335-342. (10)	Great Britain	NPMS (British National Psychiatric Morbidity Survey)	Clinical Interview Schedule (CIS-R). Symptoms diagnosed and categorized by ICD-10.	Mothers: Prevalence of a common mental disorder (CMD) two times greater among single than partnered mothers. Fathers: Prevalence of a common mental disorder (CMD) four times greater among single than partnered fathers.
Crosier T, Butterworth P, Rodgers B. Mental health problems among single and partnered mothers: The role of financial hardship and social support. Soc Psych & Psych Epi. 2007; 42: 6-13. (5)	Australia	Household Income and Labour Dynamics in Australia Survey (HILDA)	The Mental Health Scale in Short Form 36 (SF-36) -Mental Component Scale (MCS)	Single mothers had a 2 fold increased prevalence of moderate to severe mental disability compared to married mothers.
Hope S, Power C, & Rodgers B. Does financial hardship account for elevated psychological distress in lone mothers. Soc Sci & Med. 1999;49:1637-1649. (16)	Great Britain	1958 British Birth Cohort	Malaise Inventory	Single mothers had greater psychological distress than married mothers.

Authors	Country	Data source	Mental health measure	Main results: mental health of single versus partnered parents
Perez C, Beaudet MP. The health of lone parents. Health Reports. 1999;11(2):21-32. (7)	Canada	National Population Health Survey (NPHS)	Self-rated health, happiness, and psychological distress	Single mothers had a greater risk of psychological distress and reported less happiness than married mothers.
Tobias M, Gerritsen S, Kokaua J, & Templeton R. Psychiatric illness among a nationally representative sample of sole and partnered parents in New Zealand. Australian and New Zealand J of Psych. 2009;43:136-144. (11)	New Zealand	New Zealand Mental Health Survey	CIDI version 3 & Sheehan Disability Scale & Global Assessment of Functioning Scale	Compared to partnered parents, single parents were more likely to experience a 12 month prevalence of: any mental illness, any serious mental illness, anxiety disorder, mood disorder, substance use disorder, and suicidal ideation.
Wade TJ, Veldhuizen S, Cairney J. Prevalence of psychiatric disorder in lone fathers and mothers: examining the intersection of gender and family structure on mental health. Can J Psychiatry. 2011;56(9):567-573. (4)	Canada	Canadian Community Health Survey: Mental Health and Well-Being (cycle 1.2)	World Mental Health Composite International Diagnostic Interview (WMH-CIDI)	Mothers Single mothers had a higher prevalence than partnered mothers of major depression, mania, panic, substance use disorder, overall mood disorder and presence of any mood, anxiety or substance use disorder. Fathers Single fathers had a higher prevalence than partnered fathers of major depression, substance use disorder, overall mood disorder, and presence of any mood, anxiety or substance use disorder.
Wang JL. The difference between single and married mothers in the 12 month prevalence of major depressive syndrome, associated factors, and mental health service utilization. Soc Psych Epi. 2004;39:26-32. (39)	Canada	NPHS (National Population Health Survey)	CIDI-SFMD (Composite International Diagnostic Interview-Short Form for Major Depression) based on DSM-IV criteria	Single mothers had a higher prevalence of major depressive syndrome than married mothers; no difference btw single and partnered mothers if age > than 50 yrs.

Authors	Country	Data source	Mental health measure	Main results: mental health of single versus partnered parents
Weitoft GR, Burstrom B, & Rosen M. Premature mortality among lone fathers and childless men. Soc Sci & Med.2004; 59: 1449-1459. (44)	Sweden	Swedish Censuses, Sweden's Multi-Generation Register, National health register	ICD-9	Increased rate of inpatient treatment for psychiatric or addiction for single custodial fathers compared to fathers living with a partner. Non-custodial single fathers had the greatest risk of all adverse health outcomes compared to partnered fathers.
Weitoft GR, Haglund B, Hjern A, Rosén M: Mortality severe morbidity and injury among long term lone mothers in Sweden. Int J Epidemiol 2002, 31:573-80. (41)	Sweden	Swedish Population and Housing censuses	National Hospital Discharge Register	Single mothers had an increased risk of hospitalization or death as a result of psychiatric disorder, addiction, and suicide attempt/ideation compared to married mothers.

*Search strategy: Studies included in this review were restricted to those using nationally representative data bases, conducted in Western countries, and whose study focus was on clarifying differences in parents' mental health according to family structure.

Family structure is strongly associated with socioeconomic position. In a recent report by Statistics Canada on the economic well-being of women in Canada (13), compared to two-parent households, single mother households were more likely to: have a lower annual household income, be classified as a low income household, report a lower net worth (i.e., assets minus debts), report renting their home, and to spending more than 30% of their income on shelter costs (indicating greater difficulty in being able to afford their housing). Educational attainment is another indicator of socioeconomic position, and single mothers are less likely than partnered mothers to complete a post-secondary degree (2). Regarding employment, although relatively similar overall proportions of single (68.9%) and partnered mothers (73.8%) were employed in Canada in 2009, employment rates vary considerably by the age of children in the household: among mothers with children under the age of 3, 45.9% of single mothers were employed compared to 66.5% of partnered mothers (47).

Single father households are also socioeconomically disadvantaged compared to two-parent households, though not to the same extent as that observed for single mothers (Table 2).

Table 2: Socioeconomic Indicators by Family Structure, 2008*

	Couple Parents	Single Mothers	Single Fathers
Average total family income	$100,200	$42,300	$60,400
Percentage of household income from:			
Wages and salaries	80.9%	63.5%	79.9%
Government transfers	6.4%	22.9%	8.6%
Percentage in low-income (after tax)	6.0%	20.9%	7.0%
Average net worth (2009)	$442,300	$119,100	$134,600

*Adapted from Williams (13)

Similar to single mothers, however, single fathers are less likely than partnered fathers to be a home owner (14) or have a post-secondary degree (2) and are more likely to experience a high debt-to-asset ratio, indicating greater financial instability (48).

The third explanation put forth to explain family structure disparities in mental health focuses less on material circumstances and more on the psychosocial strains that single mothers might experience to a greater degree than coupled mothers. (28, 45) According to this perspective, raising a child without a resident partner may increase a parent's exposure to a variety of stressors, such as those related to parenting, maintenance of a household, and the ability to effectively balance the dual demands of home and work life. A key emphasis within the psychosocial perspective is on social support, that is, the emotional and/or instrumental resources that an individual can draw upon from within their social network in times of need to buffer the impact of life events and/or strains of a more chronic nature (45). Resident partners are (potentially) important sources of social support for parents.

In support of psychosocial perspective, considerable evidence suggests that single parents, especially single mothers, are more likely than parents in coupled relationships to experience a variety of social stressors, including recent life events involving oneself or a close family member (e.g. serious accident, trouble with the law) (8, 35, 49), caregiver burden (35) and among employed parents, greater work-family conflict (43, 50-51). In addition, both single mothers and single fathers consistently report lower levels of perceived social support compared to partnered parents (4-5, 7-10, 16).

Do Material and/or Psychosocial Conditions Account for Mental Health Disparities?

The research reviewed thus far suggests that compared to partnered parents, single parents experience, on average: 1) poorer mental health; 2) greater socioeconomic disadvantage; and 3) more social stressors/less social support. The question remains, however, do these economic and social characteristics account for single parents' compromised mental health? Researchers in the field have typically attempted to address this question statistically through the use of the "explained fraction" approach (5, 10-11, 16, 41, 44). Within the context of multivariable modeling, this approach involves first obtaining an estimate of the crude (unadjusted) association (e.g. odds ratio) between family structure and mental health. Additional relevant variables (e.g., measures of socioeconomic position, social support) are entered into the analysis in subsequent models, with the primary goal of seeing whether the introduction of these variables alters the strength of the association (odds ratio) between the primary relationship of interest; that is, between family structure and mental health.

For example, Hope et al (16) in her cohort study of British mothers, reported single mothers' unadjusted risk of psychological distress to be more than two and a half times greater than partnered mothers (OR=2.59); however, the introduction of other explanatory factors into

the model (e.g. financial hardship, employment, social support) reduced single mothers` elevated risk of psychological distress by approximately 45% (OR=1.43), with the greatest independent contribution from financial hardship. In their study of Swedish mothers, Weitoft et al (41) found that housing circumstances (e.g. home ownership) and being the recipient of social assistance together accounted for approximately 60%, 39%, and 75% of single mothers` excess rates of the cause-specific hospitalization/mortality for suicide/suicide attempt, psychiatric illness, and alcohol, respectively. Similar reductions to the strength of the association between single mother status and poorer mental health after adjustment for demographic, economic, and social variables have been reported in other research (10, 40-41).

Though less in number, a growing body of research suggests the importance of economic and social factors for single fathers' elevated risk of poor mental health (4, 11, 44). A notable exception was a recent British study which found lone fathers were nearly four times more likely than other fathers to meet the criteria for a common mental disorder and this risk remained undiminished after statistical adjustment for age, income, debt, and levels of social support (10).

When considering the relative contributions of materialist versus psychosocial explanations, on average, economic factors appear to explain a greater percentage of single mothers' excess mental health problems (39-40). However, it is important to note that with few exceptions (e.g. Crosier (5), Butterworth (42)), in many of these studies, the selected explanatory variables did not account for the entire mental differential between single and partnered parents; that is, the relationship between single parent status and poorer mental health, though diminished, remained statistically significant (8, 11, 16, 39, 41), suggesting that other risk factors, unmeasured (or incompletely measured) in these studies, are contributing to single parents' compromised mental health. In recent years, researchers from a variety of disciplines,

including social epidemiology, have become increasingly interested in social capital as another possible mechanism to explain disparities in health (29-31, 52-53). The potential relevance of social capital to understanding variation in parents' mental health according to family structure is discussed in the sections that follow.

Social Capital and Mental Health Disparities between Single and Partnered Parents

Conceptualizing Social Capital

Clear and consistent definitions of social capital are difficult to come across in the academic literature, although, there appears to be agreement that social capital is a concept that is multidimensional, multidisciplinary, and conceptually complex (22, 54). Varied definitions of social capital abound as does debate over whether social capital is best conceptualized and measured as a characteristic of a group (e.g. neighborhood) or of an individual (in relation to others) (22-23, 55-56). The epidemiological literature on social capital draws upon the work of several notable theorists (e.g Coleman (24), Bourdieu (57)), but particularly that of Robert Putnam (23) who defines social capital as "*features of social organizations such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit*" (23, p.67). Although Putman's definition clearly positions social capital as a group resource, researchers have extended his work to the study of social capital at the individual level; that is, "*the ability of actors to secure benefits by virtue of membership in social networks or other social structures*" (55, p.6).

Different dimensions of social capital have also been recognized.(22-24, 56-57) *Cognitive social capital* focuses on individuals' perceptions of trust, sense of belonging and beliefs of reciprocity (21, 25, 58). *Structural social capital* centres on individuals' behaviours, such as

contact with family/friends, volunteering with community organizations, and political participation. Structural and cognitive social capital can further be broken down according to who an individual's behavior or perceptions in relation to (58):

> *Bonding social capital* refers to relationships between families, friends and individuals that provide a foundation of identity, belonging, mutual support, and understanding. Second, *bridging social capital* refers to associations with members of different social backgrounds (e.g., socioeconomic, religious, cultural, or gender) to build one's personal connections to other formal and informal resources. Finally, *linking social capital* relates to the establishment of relationships between individuals and communities with persons in positions of power (e.g., politicians, business leaders) (59, p.92; *italics added*).

Social Capital and Mental Health

Explicit theory concerning why social capital should be associated with mental health is often lacking in the epidemiological literature, but when social capital is present, the main focus is primarily on two potential pathways (25). The first is the stress-buffering model, in which high levels of social capital either of a cognitive (e.g. sense of belonging, trust in others) or structural nature (e.g. connections to formal and informal community supports) may be protective by "cushioning" the impact of adverse life events. The second explanation posits more direct pathways, whereby stronger connections to one's social networks (structural social capital) and/or stronger feelings of trust and belonging (cognitive social capital) leads to a greater likelihood of adopting health-related social norms (e.g. regular physical activity), positive emotional states, increased self-esteem, and enhanced mental well-being.

A number of studies have reported a relationship between social capital and mental health. In a systematic review of international quantitative studies published prior to 2004, DeSilva et al (60) reported, across demographically diverse range of study participants, a consistent association between higher levels of the various cognitive dimensions of social capital

(e.g trust, sense of belonging) and a lower probability of common mental disorders. In contrast, the relationship between structural social capital (e.g. participation in community organizations) and mental health outcomes was highly variable, with some studies reporting no association (53, 61), some an inverse association (ie., higher social capital, lower risk of mental disorder)(31) and some yet reporting a positive association (ie., higher social capital, higher risk of mental disorder) (62).

More recent research has also investigated the relationship between social capital and mental health. Ziersch (53) investigated social capital's influence on the mental health of 520 residents living in two different suburbs of Southern Australia. Individuals who socialized more with friends/family and who were active in attending religious institutions were more likely to report better mental health (as measured by the SF-12). Having a greater number of formal networks (e.g. involvement in political parties, sporting clubs) was not significantly associated with mental health. Phongsavan et al (31) also found that social capital influenced Australian residents' mental health in a positive light. Three dimensions of social capital were measured in the study: participation in one's community, neighbourhood connections, and trust/reciprocity. Individuals with stronger feelings of trust and reciprocity and more connections made between neighbours had lower odds of psychological distress; the dimension of trust was most strongly associated with mental health, whereas community participation was unrelated.

Similarly, Nieminen (32) found social capital to be positively related to mental health as measured by the 12-item General Household Questionniare (GHQ12). Social capital was measured by indicators of social participation, social networks, and trust/reciprocity. Although higher scores on all measures of social capital were associated with better mental health, the dimension of trust was the most strongly associated with mental health. The results of other

studies also suggest that compared with structural social capital, cognitive social capital in general, and trust in particular, may be more consistently associated with mental health in a positive way (26-27, 63).

Family Structure, Social Capital and Mental Health

An extremely limited body of research suggests that single parents may experience lower levels of social capital than partnered parents. Ravanera et al (18) used Statistics Canada's 2003 General Social Survey (cycle 17) to investigate whether women's family structure is associated with various dimensions of social capital, including size and diversity of networks, and perceptions of trust and reciprocity. The results of the study indicated that compared to partnered mothers, single mothers had smaller informal networks, were less likely to be involved in formal organizations (e.g. recreational, political, professional, neighborhood), and expressed less trust in relation to family, community, and institutions. In an attempt to explain the findings, Ravanera et al (18) speculate:

> …lack of time to interact with the community may be one reason for social capital deficits of lone mothers…Another possible explanation could be sought in the experience of marital disruption, common to lone mothers and to divorced and separated women. Marital dissolution, often accompanied with acrimony and severance of ties with family members, possibly brings about breaking of ties with informal and formal networks and consequently decreases trust in people. (18, p. 83)

Ravanera (19) also explored family structure patterns in social capital among Canadian fathers using the same data set and the same dimensions of social capital, with the exception of links to and trust in formal organizations. Similar to the results with mothers, single fathers had lower levels of social capital than partnered fathers in terms of informal network size and trust in family and neighbours. Unfortunately, neither of these studies considered single parents' deficiencies in social capital in relation to their mental health.

Only one study, to the best of this author's knowledge, has explicitly examined social capital as a potential explanation for differences in the well-being of single and partnered mothers. In a recent mail survey of Swedish parents with children living in the home, Westin et al (20) found single parents to be 1.61 times more likely than partnered parents to rate their health as "less than good". When socio-demographic characteristics and measures of social capital (i.e., trust and participation in civic/social activities) were added into the logistic regression analysis in the next stage, the strength of the relationship between single parent status and self-rated health diminished slightly (OR=1.40) but, remained statistically significant. However, when measures of socioeconomic position and social support were also added, single parent status was no longer predictive of poor self-rated health (20). These findings suggest that low levels of social capital, in combination with limited social support and financial hardship, may contribute to disparities in health between single and partnered parents. While this study does provide some insight into the relationship between family structure, social capital, and general health, methodological limitations are present.

In addition to the use of general self-rated health as the dependent variable (as opposed to mental health), mothers and fathers were treated as a single group in the multivariable analysis, which is inappropriate considering previous research suggesting the relationship between social capital and mental health may differ for men and women (64-65). As well, the reliability and validity of the measure of trust used in the study is questionable, given that it was comprised of only a single item ("Can most people be trusted? Yes/No). Finally, Westin et al (20) did not examine whether particular dimensions of social capital are more (or less) important in relation to parents' health, an important omission given the research reviewed in the previous section (26-27, 31, 53, 60, 63).

Chapter Three: Methodology

This chapter details the methodological process undertaken to address the study's research questions. The source of data is described, followed by a description of the study measures. The chapter concludes with a description of the statistical analyses carried out.

Data Source and Participants

The current study uses Statistics Canada data from a recent cycle of the General Social Survey (GSS) (66). The GSS series of questionnaires are designed to measure shifts in the Canadian population over time, with the intent of providing policy-relevant information to ultimately enhance the well-being of its population (66). Since 1985, there have been 24 cycles of the GSS, each highlighting a particular topic deemed to be of relevance to Canadians (e.g. time stress, health and well-being, aging, family relationships, mobility)(67).

The GSS Cycle 22: Social Networks was the data source for this study, and, as the name implies, focused on Canadians' relationships. The GSS sampling frame, which purportedly covered 92% of the Canadian population, included households from the 10 Canadian provinces but excluded individuals living in the Yukon, Northwest Territories, Nunavut, and full-time residents of institutions (66). The GSS is considered a "complex" survey, meaning that the selection of eligible respondents was not based on simple random sampling, but rather, involved" *stratification and multiple stages of selection, and unequal probabilities of selection of respondents*" (66, p. 18). Data for this telephone survey was gathered in 2008 between the months of February and November 2008. The survey was conducted using the Computer Assisted Telephone Interview (CATI) method whereby randomly selected households were contacted and one individual over the age of 15 within the dwelling was asked to participate. The response rate for the GSS cycle 22 was 42.7% (66).

The sample size of the GSS Cycle 22 was 20,401 (66). To address the study research questions, participants in this study were restricted to those individuals who indicated being between the ages of 18 and 59 years with at least one child (biological, adoptive, or through marriage) under the age of 25 living in their household (n= 5600). Of the 5600 participants there were: 523 single mothers, 125 single fathers, 2406 partnered mothers, and 2546 partnered fathers.

Measures

Dependent Variable

The dependent variable was self-rated mental health (SRMH). Participants were asked "In general, would you say your mental health is (1) "excellent" (2) "very good" (3) "good" (4) "fair" (5) "poor";these categories were collapsed into two groups: 1) excellent/very good/good and 2) fair/poor (17-18, 68). Mawani et al (69) examined the validity of the SRMH using data from Statistics Canada 2002 survey on mental health and well-being. The authors found self-ratings of fair/poor mental health to be quite consistently and strongly associated with multi-item, standardized measures of mental morbidity. The authors noted however, that a sizeable portion of individuals who met the criteria for a mental disorder (as determined by the World Mental Health version of the Composite International Diagnostic Interview) did not rate their mental health as fair/poor". Thus, according to Mawani et al (69), although it may be appropriate for researchers to consider SRMH a valid and reliable measure of general mental health, "*for specific morbidities, SRMH cannot be used to monitor trends, investigate etiology, predict the need for treatment, or determine if those who need treatment are receiving it*" (69, p. 9).

Independent Variables

The primary independent variable was family structure, operationalized in this study on the basis of current living arrangement. Coupled parents were those participants who indicated living with at least one child (less than 25yrs) in the household and with a partner (married or common-law).The different categories of non-partnered status (separated/divorced, never married, widowed) were collapsed into a single category (ie., non-partnered) as a result of analyses, indicating no statistically significant difference between groups on self-rated mental health (data not shown).

There were four categorical demographic/family characteristic variables that included: *parents' age* (18 to 39 yrs, 40 to 59 yrs), *number of children living in the household* (one, two, three, four or more), *number of children under the age (or equal to) of 14 years living in the household* (none, one, two, three or more) and *age of the youngest child in the household* (0-4 yrs, 5-11 yrs, 12-18 yrs, 19years+).

Five categorical variables were used as indicators of socioeconomic conditions. These were: *personal income* (0 to$29,999, $30, 000 to $59,999, $60,000 to $99,999, $100,000 or more), *household income* (0 to $59, 999, $60,000 to $99,999, $100,000 or more), *home ownership* (yes/,no), *highest educational attainment* (less than high school, high school graduate, post-secondary graduate) and *main activity.* Regarding main activity, participants were asked to indicate what they considered as their main activity in the year preceding the survey with response categories including working at a paid job or business, looking for paid work, going to school, caring for children, household work, retired, maternity/paternity leave, long term illness, volunteering or care-giving for other children, and other. The cell sample sizes led to the

decision to collapse respondents' answers into one of two groups: 1) working at a paid job/business or 2) "other".

Development of Measures of Social Capital

At present, there is no agreed upon "best" measure of social capital; however, there does seem to be a growing consensus that the conceptual complexity of social capital requires the use of theoretically informed, multi-item measurement (70). To develop the measure of social capital for this study, available questions on the GSS were reviewed and questions believed to best represent the key dimensions of social capital were selected, informed by the conceptual work of Szreter et al (71), the Canadian Policy Research Initiative's recommendations for measuring social capital (22), and social capital research using earlier cycles of the GSS (18-19). Specifically, 33 questions were chosen to represent five dimensions of social capital: network characteristics (i.e. size), diversity of networks, network relations (proximity), relational ties (event interactions), and norms and trust of networks.

Principal components analysis (PCA) using orthogonal varimax rotation was then conducted with the aim of reducing the number of items into smaller, meaningful groupings or "components" (72). The 'eigenvalues greater than 1' criterion was used to determine the number of components to extract (72). Eight factors met the criterion (see Appendix A for factor loadings) but only five factors had high factor loadings. Inspection of the items which loaded on the five factors suggested that they represented the following dimensions of social capital: 1) confidence in institutions (Factor 1), trust (Factor 2), size of networks (Factor 3), diversity of networks (Factor 4) and relational ties (Factor 5). Chronbach alphas performed for each factor and the inter-correlations between the factors are shown in Table 3. Shown in Table 4 are

linkages between the factors identified in the PCA, the items which comprise the factors, and the dimensions of social capital represented.

Table 3: Chronbach alphas and inter-correlation matrix for social capital measures

	Confidence in institutions	Trust	Size of Networks	Diversity of Networks	Chronbach Alpha (α)
Confidence in institutions					0.79
Trust	0.009				0.74
Size of networks	-0.004	-0.007			0.55
Diversity of networks	-0.014	-0.002	-0.008		0.56
Relational ties	0.001	0.006	0.003	0.007	0.57

Table 4: Dimensions of social capital and corresponding GSS items

Factor	GSS items	Interpretation of factor score	Type of social capital	Form of social capital
Confidence in institutions	• For each type of institution, could you tell me whether you have a great deal of confidence, quite a lot of confidence, not very much confidence, or no confidence at all (66): o federal parliament? o banks? o major corporations? o the justice system and courts? o the healthcare system? o the school system? o local merchants and business people ? o the police? o the welfare system?	Higher scores reflect greater perceived confidence and trust in institutions.	Linking	Cognitive
Trust	• Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people (66): o People in your family? o People in your neighbourhood? • If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by someone who lives close by? (very likely, somewhat likely, not at all likely) • Would you say that (in your	Higher scores indicate greater trust in community, neighborhood, and in friends.	Bonding & Bridging	Cognitive

Factor	GSS items	Interpretation of factor score	Type of social capital	Form of social capital
	neighborhood) you trust: most of the people, many of the people, a few of the people, or nobody else? • Generally speaking, would you say that 1) most people can be trusted or that 2) you cannot be too careful in dealing with people?			
Relational ties	• In the past 12 months, were you a member or participant in: … a cultural, educational or hobby organization (such as theatre group, book club or bridge club)? (66) • In the past 12 months, were you a member or participant in: a religious-affiliated group (such as church you group or choir)? • In the past 12 month, were you a member or participant in: A sports or recreational organization (such as hockey league, health club, or golf club)? • In the past 12 months, were you a member or participant in: a school group, neighbourhood, civic or community association (such as PTA, alumni, block parents or neighbourhood watch)?	Higher scores indicate greater sense of belonging, greater perceived reciprocity and a larger neighborhood network	Bonding & Bridging	Structural & Cognitive

Factor	GSS items	Interpretation of factor score	Type of social capital	Form of social capital
	• How would you describe your sense of belonging to your local community? Would you say it is: (very strong, somewhat strong, somewhat weak, very weak)? • Would you say this neighbourhood is a place where neighbours help each other (yes/no)? • Would you say that you know most, many, a few or none of the people in your neighbourhood?			
Diversity of Networks	• Think of all the friends you had contact with in the past month, whether the contact was in person, by telephone, or by email. Of all these people, how many (66): o have roughly the same level of education as you? o are from a similar household income level as you? o are in about the same age group as you? o come from an ethnic group that is visibly different from yours?	Higher scores indicate a more socio-demographically diverse social network	Bridging	Structural
Size of Networks	• How many close friends do you have (that is, people who are not your relatives, but who you feel at ease with, can talk to about what is on your mind, or call on for help)? (66)	Higher scores indicate a larger informal network	Bonding	Structural

Factor	GSS items	Interpretation of factor score	Type of social capital	Form of social capital
	• How many relatives do you have who you feel close to? • Not counting your close friends or relatives, how many other friends do you have?			

Analysis

The current study looked to examine two questions: 1) can disparities in mental health between single and partnered parents be explained by differences between these groups in social capital, above and beyond that explained by economic factors?; and 2) are there particular dimensions of social capital which are more or less strongly associated with family structure disparities in mental health?

Bivariate and multivariable analyses were conducted to address the research questions using the Statistical Package for Social Sciences (SPSS) version 19. The significance level for all analyses were set at $\alpha=0.05$. All analyses were conducted separately for mothers and fathers. Bivariate analyses were conducted to examine, according to family structure, differences in demographic/family characteristics, socioeconomic characteristics, social capital, and self-rated mental health. Differences between single and partnered parents were tested using chi-square tests for categorical variables and t-tests for continuous measures.

To examine whether any observed differences in self-rated mental health between single and partnered parents could be accounted for by measures of social capital (after

adjustment for socioeconomic characteristics), two sets of multiple logistic regression analyses were conducted. In the first set of analyses, Model 1 assessed the unadjusted relationship between family structure and self-rated mental health, with subsequent steps evaluating the impact of each added block of variables on the primary relationship of interest: Model 2, demographic/family characteristics (parents' age, age of youngest child, and number of children); Model 3, socioeconomic indicators (educational attainment, main activity, household income, and home ownership); and Model 4, social capital (confidence in institutions, trust, relational ties, diversity of networks and size of networks).

The second series of multiple logistic regression analyses followed a process similar to the first, but rather than variable blocks, evaluated the separate effects of the individual social capital variables on the family structure–self-rated mental health association (after statistical adjustment for demographic/family and socioeconomic characteristics).

Chapter Four: Results

In this chapter, the results of the data analyses, including bivariate and multiple logistic regressions, are presented.[1]

Bivariate Results

Table 5 shows the results of the chi-square analyses comparing partnered and single mothers on various demographic, economic and social variables. A greater proportion of partnered than single mothers reported being the parent of: two or more children, at least one child under the age of 14 years, and at least one child under the age of five years. With respect to the socioeconomic variables, although no differences emerged in personal income or main source of income, a significantly greater percentage of partnered than single mothers reported attaining a post-secondary degree, a yearly household income of greater than $100,000, being a home-owner, and indicating their main activity as "other" than employment (ie., unpaid care-giving, looking for work, volunteer work). On the dimensions of social capital, partnered mothers scored higher than single mothers on trust and diversity of networks but did not differ significantly on measures of confidence in institutions, relational ties, or size of networks. A significantly greater proportion of single mothers (15%) than partnered mothers (5.3%) rated their mental health as fair or poor.

[1] All analyses were conducted using the sampling weights provided by Statistics Canada. For the determination of statistical significance, a more conservative estimate was computed by dividing the weighting factor by the mean weight for the complete sample (General Social Survey, User Guide (66)).

Table 5: Study variables by family structure, mothers

	Single Mothers	Partnered Mothers	p
	%		
Mothers' age (yrs)			
18-39	45.7	48.3	
40-59	54.3	51.7	0.28
Number of children			
One	51.1	34.5	
Two	36.1	45.6	
Three	12.8	19.9	≤0.001
Number of children ≤ 14yrs			
None	33.3	26.2	
One	38.7	32.5	
Two	21.6	29.5	
Three or more	6.1	11.8	≤0.001
Age of youngest child (yrs)			
0-4	21.8	34.5	
5-11	31.1	26.8	
12-18	33.2	25.7	
19+	13.9	13.1	≤0.001
Educational Attainment			
Less than high school	13.7	6.8	
High school graduate	32.3	25.8	
Post-secondary graduate	54.0	67.4	≤0.001
Household Income			

	Single Mothers	Partnered Mothers	p
≤ 59,999	61.2	24.7	
60,000-99,000	15.5	27.4	
≥ 100,000	23.3	47.9	≤0.001
Personal income ($)			
≤ 29,999	44.9	45.6	
30,000-59,999	37.5	36.2	
60,000-99,999	15.3	13.6	
≥ 100,000	2.3	4.6	0.14
Home Ownership			
Yes	51.7	86.4	
No	48.3	13.6	≤0.001
Main Activity			
Employment	68.6	60.9	
Other	31.4	39.1	≤0.001
Main source of income			
Employment	71.7	75.0	
Other	28.3	25.0	0.13
	Mean (SD)		
Social capital (factor scores)			
Confidence in institutions	0.06(1.05)	0.07(1.01)	0.78
Trust	-0.26(1.17)	0.00(0.93)	≤0.001
Relational Ties	-0.06(1.06)	-0.04(0.97)	0.76
Diversity of Networks	-0.14(1.08)	0.03(0.98)	0.001
Size of Networks	0.01(0.79)	-0.04(0.98)	0.33

	Single Mothers	Partnered Mothers	p
	%		
Self-rated mental health			
Excellent/Very Good/Good	85.0	94.7	
Fair/Poor	15.0	5.3	≤0.001

Table 6 displays the results of the bivariate analyses for fathers. A greater proportion of partnered than single fathers reported being the parent of: two or more children, at least one child under the age of 14years, and at least one child under the age of five years. There was no statistically significant difference in educational attainment, personal income, main activity, or main source of income according to fathers' family structure; however, a greater percentage of partnered than single fathers reported a household income of equal to or greater than $100,000 and owning their own home. In regard to social capital, partnered fathers expressed less confidence in institutions than single fathers; single and partnered fathers did not differ significantly on any of the other measures of social capital. A greater percentage of single fathers (10.5%) than partnered fathers (5.9%) rated their mental health as fair or poor.

Table 6: Study variables by family structure, fathers

	Single Fathers	Partnered Fathers	p
	%		
Fathers' age (yrs)			
18-39	30.4	38.1	
40-59	69.6	61.9	0.08
Number of children			
One	59.2	33.9	
Two	31.2	47.7	
Three	9.6	18.4	≤0.001
Number of children ≤ 14yrs			
None	41.1	28.1	
One	37.9	29.9	
Two	17.7	30.9	
Three or more	3.2	11.2	≤0.001
Age of youngest child (yrs)			
0-4	9.6	34.7	
5-11	30.4	24.9	
12-18	40.8	31.4	
19+	19.2	12.6	≤0.001
Educational Attainment			
Less than high school	11.3	10.4	
High school graduate	29.0	23.3	
Post-secondary graduate	59.7	66.3	0.29

	Single Fathers	Partnered Fathers	p
Household Income			
≤ 59,999	32.0	23.1	
60,000-99,000	30.4	27.8	
≥ 100,000	37.6	49.1	0.02
Personal income ($)			
≤ 29,999	12.6	12.5	
30,000-59,999	36.9	36.5	
60,000-99,999	34.0	32.0	
≥ 100,000	16.5	19.0	0.93
Home Ownership			
Yes	76.2	86.0	
No	23.8	14.0	≤0.001
Main Activity			
Employment	91.9	91.8	
Other	8.1	8.2	0.95
Main source of income			
Employment	91.7	94.0	
Other	8.3	6.0	0.32
	Mean (SD)		
Social capital (factor scores)			
Confidence in institutions	0.14(1.17)	-0.11(0.93)	0.01
Trust	0.12(1.21)	0.05(0.99)	0.51
Relational Ties	-0.12(1.09)	0.06(1.00)	0.06
Diversity of Networks	-0.03(0.87)	-0.01(0.99)	0.88

	Single Fathers	Partnered Fathers	p
Size of Networks	-0.11(0.84)	0.03(1.03)	0.16
	%		
Self-rated mental health			
Excellent/Very Good/Good	89.5	94.1	
Fair/Poor	10.5	5.9	0.04

Multivariable Results

Table 7 displays the results of the multiple logistic regression for mothers. Model 1 shows the crude association between family structure and self-rated mental health indicating that single mothers were 3.03 (95% CI 2.23-4.12) times more likely than partnered mothers to assess their mental health as poor or fair. In Model 2, with the introduction of family characteristics, the association between family structure and mental health diminished slightly (OR=2.96) but remained statistically significant (95% CI 2.16-4.07). When socioeconomic factors were entered into the regression equation in Model 3, the odds ratio for family structure diminished further in magnitude to 2.41 but again remained significantly associated with mental health (95% CI 2.16-4.07). With the introduction of the social capital variables as a block in Model 4, the relationship between family structure and mental health remained statistically significant, though the odds ratio reduced a further 12% to 2.13 (95% CI 2.16-4.07). In the final model, the following variables were associated with a greater odds of fair/poor self rated health among mothers: being a single parent, reporting one's main activity as being something other than employment, having less confidence in institutions, being less trustful of the community and having a smaller network size.

Five additional logistic regression analyses were conducted to identify which of the social capital dimensions individually explained the greatest amount of the mental health differential between single and partnered mothers, after adjustment for socioeconomic and other covariates (Table 8). Although variation was slight between the different social capital variables, the dimension of trust resulted in the largest attenuation (5%) to the family structure odds ratio.